

REMARKS

This is in response to the Office Action that was mailed on May 20, 2004. References to copending applications in the specification have been amended to reflect corresponding publications. Claim 15 is amended to incorporate the recitation of claim 16. Claim 16 is cancelled, without prejudice. The dependency of claim 17 is adjusted in view of the cancellation of claim 16. Claims 1-15 and 17-27 remain in the application.

Restriction was required amongst:

- I. Claims 1-4 and 7-21;
- II. Claims 5, 6, and 24-27; and
- III. Claim 22.

Applicants elect the invention of Group I, with traverse. Applicants traverse the requirement for restriction on the ground that all three inventions as grouped by the Examiner are closely related. It is respectfully submitted that the public interest would be best served by considering all three of these inventions together in the present application.

Claim 16 was rejected as failing to define the invention properly, under the first paragraph of 35 U.S.C. §112. This ground of rejection has been obviated by the cancellation of claim 16.

Claims 7, 8, and 11-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over US 5,759,622 (Stover) in view of US 5,286,565 (Holzl) and US 5,686,144 (Thebault). The rejection is respectfully traversed.

The Examiner acknowledges that Stover is silent as to the presence of boron carbide glass precursor, and relies upon Holzl to teach that aspect of Applicants' invention.

Holzl teaches etching the surface of a carbon body with gaseous boron oxide. The oxygen from the boron oxide forms gaseous carbon monoxide. After this etching treatment, the surface of the carbon body contains a boron carbide layer. Column 3, lines 20-40. Regarding glass formation, Holzl teaches that the primary glass forming species are nitrides and oxynitrides of silicon, although the coating "may also contain boron, boron oxide, boron carbide, silicon, silicon alloy, silicon dioxide, germania, borides and oxides of zirconium, aluminum, magnesium, hafnium, titanium, carbides of zirconium, hafnium, titanium, nitrides of zirconium, hafnium, titanium, silicon and mixtures thereof". Column 4, lines 46-58. Holzl's Example 3 refers to a boron glass formation coating, but provides no details thereof.

Manifestly, Holzl fails to teach or suggest "applying a coating of fluidized borophosphate glass precursor over the component by immersing the C-C component in a bath containing glass precursor components including at least 2 weight-% boron carbide".

It is respectfully suggested that the Examiner's reading of the Holzl disclosure is based upon improper hindsight directed by Applicants' disclosure, and that the rejection of record is not sustainable.

Claims 15 and 18-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Stover in view of Holzl and WO93/10057 (Orlov). The rejection is respectfully traversed.

The Examiner acknowledges that Stover is silent as to the presence of boron carbide glass precursor, and relies upon Holzl to teach that aspect of Applicants' invention.

As noted above, Holzl teaches etching the surface of a carbon body with gaseous boron oxide. The oxygen from the boron oxide forms gaseous carbon monoxide. After this etching treatment, the surface of the carbon body contains a boron carbide layer. Column 3, lines 20-40. Regarding glass formation, Holzl teaches that the primary glass forming species are nitrides and oxynitrides of silicon, although the coating "may also contain boron, boron oxide, boron carbide, silicon, silicon alloy, silicon dioxide, germania, borides and oxides of zirconium, aluminum, magnesium, hafnium, titanium, carbides of zirconium, hafnium, titanium, nitrides of zirconium, hafnium, titanium, silicon and mixtures thereof". Column 4, lines 46-58. Holzl's Example 3 refers to a boron glass formation coating, but provides no details thereof.

Manifestly, Holzl fails to teach or suggest "a liquid precursor including 25-50 weight-% phosphoric acid, 1-10 weight-% manganese phosphate, 2-20 weight-% potassium hydroxide, 0-10 weight-% boron nitride, 2-28 weight-% boron carbide, and 20-60 weight-% water". It is respectfully suggested that the Examiner's reading of the Holzl disclosure is based upon improper hindsight directed by Applicants' disclosure, and that the rejection of record is not sustainable.

Claims 15 and 18-20 were rejected on the ground of obviousness double patenting over U.S. Patent No. 6,737,120 B1. The rejection is respectfully traversed.

The Examiner erroneously alleges that Holzl teaches that boron carbide is a known glass precursor in the formation of protective coating on carbon-carbon composites. On the contrary, Holzl teaches etching the surface of a carbon body with gaseous boron oxide. The oxygen from the boron oxide forms gaseous carbon monoxide. After this etching treatment, the surface of the carbon body contains a boron carbide layer. Column 3, lines 20-40. Regarding glass formation, Holzl teaches that the primary glass forming species are nitrides and oxynitrides of silicon, although the coating "may also contain boron, boron oxide, boron carbide, silicon, silicon alloy, silicon dioxide, germania, borides and oxides of zirconium, aluminum, magnesium, hafnium, titanium,

carbides of zirconium, hafnium, titanium, nitrides of zirconium, hafnium, titanium, silicon and mixtures thereof". Column 4, lines 46-58. Holzl's Example 3 refers to a boron glass formation coating, but provides no details thereof. Manifestly, Holzl fails to teach or suggest "a liquid precursor including 25-50 weight-% phosphoric acid, 1-10 weight-% manganese phosphate, 2-20 weight-% potassium hydroxide, 0-10 weight-% boron nitride, 2-28 weight-% boron carbide, and 20-60 weight-% water".

It is respectfully suggested that the Examiner's reading of the Holzl disclosure is based upon improper hindsight directed by Applicants' disclosure. Withdrawal of the obviousness double patenting rejection is respectfully solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher (Reg. No. 28,781) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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